

**ENVIRONMENTAL COOPERATION**

**GLOBE Program**

**Agreement Between the  
UNITED STATES OF AMERICA  
and GHANA**

Signed at Accra March 20, 1998

*with*

Appendices



NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89—497, approved July 8, 1966  
(80 Stat. 271; 1 U.S.C. 113)—

“ . . .the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof.”

## **GHANA**

### **Environmental Cooperation: GLOBE Program**

*Agreement signed at Accra March 20, 1998;*

*Entered into force March 20, 1998.*

*With appendices.*

**Agreement between  
the National Oceanic and Atmospheric Administration  
of the United States of America and  
the (Organization) of the Republic of Ghana  
for Cooperation in the GLOBE Program**

**PREAMBLE**

The U.S. National Oceanic and Atmospheric Administration, acting on behalf of itself and other U.S. Government agencies participating in the GLOBE Program (hereinafter, the U.S. side), and the Ministry of Education of the Republic of Ghana (hereinafter, the Ghanaian side).

Intending to increase the awareness of students throughout the world about the global environment,

Seeking to contribute to increased scientific understanding of the Earth, and

Desiring to support improved student achievement in science and mathematics,

Have agreed to cooperate in the Global Learning and Observations to Benefit the Environment (GLOBE) Program as follows:

**ARTICLE 1 - THE GLOBE PROGRAM**

The GLOBE Program is an international environmental science and education program that brings students, teachers, and scientists together to study the global environment. GLOBE has created an international network of students at primary, middle and secondary school levels studying environmental issues, making environmental measurements, and sharing useful environmental data with one another and the international science community.

**ARTICLE 2 - RESPECTIVE RESPONSIBILITIES**

A. The U.S. side will:

1. Identify U.S. schools that will participate in the GLOBE Program (details regarding GLOBE schools in Appendix A):
2. Select, in consultation with international scientists and educators, the GLOBE environmental measurements and types of measurement equipment (described in Appendix B);

3. Select Principal Investigator Teams for the GLOBE environmental measurements, and support the U.S. members of the Teams;
  4. Develop, in consultation with international scientists and educators, GLOBE educational materials;
  5. Translate GLOBE instructional materials related to measurement procedures and data reporting protocols into the six United Nations languages, and provide a copy of these plus all broader GLOBE educational materials to the Ghanaian side for further reproduction as necessary;
  6. Conduct regional training sessions for GLOBE Country Coordinators and GLOBE teachers who will serve as trainers for additional GLOBE teachers in Ghana;
  7. Design, develop, operate, and maintain GLOBE data processing capabilities and other necessary technology and equipment;
  8. Provide GLOBE software, as necessary, for use on Ghanaian GLOBE school computers (To the extent possible, textual material appearing on computer screens will be accessible in the student's choice among the six United Nations languages.);
  9. Accept environmental data reported from GLOBE schools around the world, and develop and provide resultant global environmental images to the Ghanaian side; and
  10. Evaluate the overall GLOBE Program periodically, in consultation with international GLOBE Country Coordinators, and modify the overall program as appropriate.
- B. The Ghanaian side will:
1. Identify Ghanaian schools that will participate in the GLOBE Program (details regarding GLOBE schools in Appendix A) and provide an updated list of Ghanaian GLOBE schools to the U.S. side at the beginning of each school year;
  2. Ensure that Ghanaian GLOBE schools conduct the fundamental activities of GLOBE schools detailed in Appendix A (take GLOBE environmental measurements, report data, and receive and use resultant global environmental images, using GLOBE educational materials under the guidance of teachers trained to conduct the GLOBE Program);
  3. Name a Ghanaian Government Point of Contact responsible for policy-level communications with the Director of the GLOBE Program;

4. Name a Country Coordinator responsible for day-to-day management, oversight, and facilitation of the GLOBE Program in Ghana;
5. Ensure that the Country Coordinator and some GLOBE teachers attend GLOBE regional training and in turn provide GLOBE training to at least one teacher in each Ghanaian GLOBE school;
6. Ensure that GLOBE instructional materials related to measurement procedures and data reporting protocols are utilized in Ghanaian GLOBE schools, and that broader GLOBE educational materials are appropriately translated, adapted, reproduced, and distributed to all Ghanaian GLOBE schools;
7. Ensure that the measure equipment used by GLOBE schools to take GLOBE environmental measurements meets GLOBE specifications (described in Appendix B);
8. Ensure that teachers and students at Ghanaian GLOBE schools calibrate GLOBE measurement equipment according to procedures provided in GLOBE instructional materials;
9. Ensure that Ghanaian GLOBE schools have the necessary computer and communications systems to allow Internet/World Wide Web access in order to report GLOBE environmental measurements and to receive and use GLOBE environmental images; if such computer and communications systems are not available in Ghanaian schools, make agreed alternative arrangements for such reporting and receipt (At a minimum, the Ghanaian Country Coordinator will need access to the Internet so that all measurement data from Ghanaian GLOBE schools will be reported via Internet.); and
10. Evaluate GLOBE operations in Ghana periodically and assist the U.S. side in conducting periodic evaluation of the overall GLOBE Program.

### **ARTICLE 3 - FINANCIAL ARRANGEMENTS**

Each side will bear the costs of fulfilling its respective responsibilities under this agreement. Obligations of each side pursuant to this agreement are subject to its respective funding procedures and the availability of appropriated funds, personnel, and other resources. The conduct of activities under this agreement will be consistent with the relevant laws and regulations of the two sides.

### **ARTICLE 4 - EXCHANGE OF DATA AND GOODS**

GLOBE environmental measurement data, global environmental images, software, and educational materials will be available worldwide without restriction as to their use or redistribution.

#### ARTICLE 5 - RELEASE OF INFORMATION ABOUT THE GLOBE PROGRAM

Each side may release information on the GLOBE Program as it may deem appropriate without prior consultation with the other.

#### ARTICLE 6 - CUSTOMS AND IMMIGRATION

Each side will, to the extent permitted by its laws and regulations, facilitate the movement of persons and goods necessary to implement this agreement into and out of its territory and accord entry to such goods into its territory free of customs duties and other similar charges.

#### ARTICLE 7 - DURATION

This agreement will enter into force upon signature of the two sides and will remain in force for five years. It will be automatically extended for further five-year periods, unless either side decides to terminate it and so notifies the other side with three months written notice. This agreement may be terminated at any time by either side upon three months prior written notice to the other side. This agreement may be amended by written agreement of the two sides.

Done in Accra, Ghana on the 20th day of March, 1998 in duplicate.

For the National Oceanic and  
Atmospheric Administration:



EDWARD BRYNN  
AMBASSADOR

For the Ministry of Education  
Ghana:



DR. MOHAMMED IBN CHAMBAS  
DEPUTY MINISTER OF EDUCATION

## APPENDIX A GLOBE Schools

Each partner country is responsible for identifying its participating schools. Schools should be selected so as to satisfy the objectives of the GLOBE Program. In particular, countries should emphasize the selection of schools that will maximize the number and geographic distribution of students worldwide participating in the program. Also, countries should consider involving schools in locations that will yield measurement data that is important to the international science community.

Students at all GLOBE schools throughout the world conduct the following fundamental activities: they make environmental measurements at or near their schools; report their data to a GLOBE data processing site; receive vivid graphical global environmental images created from their data and the data from other GLOBE schools around the world; and study the environment by relating their observations and the resulting images to broader environmental topics. All of these activities are conducted under the guidance of specially trained teachers (GLOBE-trained teachers).

GLOBE educational materials are used in GLOBE schools under the guidance of GLOBE-trained teachers. These materials contain instructional materials detailing procedures for taking environmental measurements and protocols for reporting data; they also explain the significance of the measurements, guide the use of the global environmental images, and integrate the measurement aspects of the program into a broader study of the environment.

## APPENDIX B

### GLOBE Environmental Measurements and Equipment

GLOBE environmental measurements contribute in a significant way to the scientific understanding of the dynamics of the global environment. Every GLOBE school is encouraged to conduct the core set of GLOBE environmental measurements in the following critical areas: Atmosphere/Climate, Hydrology, Land Cover/Biology and Soils. As the GLOBE Program evolves, specialized measurements not common to all GLOBE schools may be added in order to address local environmental issues.

Students at all skill levels are active participants in the GLOBE Program. The actual participation is designed so as to be appropriate for primary, middle and secondary school levels. Younger students make limited measurements which may be qualitative rather than quantitative. Older students make additional measurements and more sophisticated measurements, as appropriate for their skill level. Measurement equipment is not standardized; rather, functional and performance specifications are provided for GLOBE instruments.

Following is the list of GLOBE core measurements and equipment. This list has been developed and will be periodically updated as provided in Article 2.A.2, based on experience gained in implementing the GLOBE Program.

#### MEASUREMENTS

#### EQUIPMENT NEEDED

##### Atmosphere/Climate:

Air Temperature

Max/Min Thermometer  
Calibration Thermometer  
Instrument Shelter

Precipitation

Rain Gauge

Cloud Cover/Type

Cloud Charts

##### Hydrology:

Water pH

pH Paper, Pen. or Meter

Water Temperature

Organic Liquid-Filled Thermometer

Dissolved Oxygen

Dissolved Oxygen Kit

Alkalinity

Water Alkalinity Kit

Electrical Conductivity

Electrode-Type Conductivity Tester

**Land Cover/Biology:**

Land Cover

Species Identification

Biometry

Remote Sensing Image

Multispec Software

Dichotomous Keys

Measuring Tape

Clinometer (Optional)

Densimeter (Optional)

**Soils:**

Soil Moisture

Soil Characterization

Soil Sample Cans

Augur

Soil Moisture Meter (Optional)

Gypsum Blocks (Optional)

Color Chart

Graduated Cylinders

Augur (Optional)

## APPENDIX C

### GLOBE Computer and Communications Systems

In order to derive maximum benefit from the GLOBE Program, all schools are encouraged to use the Internet, along with classroom computers. The Internet/World Wide Web multi-media information-access capability has been selected to support the required GLOBE school activities of data entry, data analysis, and use of global environmental images.

The diversity of technology accessible by schools worldwide may require, in some cases, that environmental measurements be reported via e-mail or in hardcopy and that a variety of media, including e-mail and hardcopy, be used to distribute global environmental images. All schools that want to participate in the program will be accommodated.

Technology associated with the GLOBE Program will continually evolve to higher levels and participants will be encouraged to upgrade over time.